No. 200300180

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

California Cooperative Rice Research Foundation, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR FFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. AMENDED, 7 U.S.C. 2321 ET SEQ.)

RICE

'M-206'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this tenth day of November, in the year two thousand and four.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

PLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
California Cooperative Rice Research Foundation, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
98-Y-242

3. VARIETY NAME
M-206

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
Rice Experiment Station
P.O. Box 306
955 Butte City Hwy
Biggs, CA 95917-0306

5. TELEPHONE *(Include area code)*
530-868-5481

6. FAX *(Include area code)*
530-868-1730

FOR OFFICIAL USE ONLY

PVPO NUMBER
200300180

FILING DATE
March 4, 2003

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Non Profit Organization

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
CA

9. DATE OF INCORPORATION
1912

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Dr. Kent S. McKenzie
Director
Rice Experiment Station
Biggs, CA 95917-0306

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 3652.00
DATE Feb. 20, 2003

CERTIFICATION FEE:
$ 432.00
DATE 10-5-04

11. TELEPHONE *(Include area code)*
530-868-5481

12. FAX *(Include area code)*
530-868-1730

13. E-MAIL
ksmckenzie@crrf.org

14. CROP KIND *(Common Name)*
Rice

15. GENUS AND SPECIES NAME OF CROP
Oryza sativa L.

16. FAMILY NAME *(Botanical)*
Gramineae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse).

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample (2,500 viable untreated seeds of; for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)
g. ☐ Filing and Examination Fee ($2,705), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 20 and 21 below)* ☐ NO *(If "no", go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☒ YES ☐ NO
IF YES, WHICH CLASSES? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. 2 FOUNDATION 1 REGISTERED 1 CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☒ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☒ YES ☐ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER			
Kent S McKenzie			
NAME *(Please print or type)*		NAME *(Please print or type)*	
		KENT S. McKENZIE	
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
		DIRECTOR	2-13-03

STD-470 (04-01) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (02-99) which is obsolete.

INSTRUCTIONS

2003001 80

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $2,705 ($320 filing fee and $2,385 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

ITEM

18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

19. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

22. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

23. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

21. **CONTINUED FROM FRONT** *(Please provide a statement as to the limitation and sequence of generations that may be certified.)* Foundation seed is maintained by the Rice Experiment Station(RES). Normal seed multiplication starts with head row seed used for breeders which in turn is used to plant foundation. Headrow seed is produced as necessary. RES policy allows foundation seed to be used to produce Foundation seed when necessa

22. **CONTINUED FROM FRONT** *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)* M-206 was jointly released by the California Co-op Rice Research Foundation, California Agricultural Experiment Station, and the USDA-ARS. Foundation will be distributed to California rice seed growers April 1, 2003 for the purpose of producing registered seed.

23. **CONTINUED FROM FRONT** *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*
M-206 application Docket No. 1351-0008, Serial No. 10/657,892 issued 9 Sept. 2003

RAO
9/4/04

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center–East, Beltsville, MD 20705. Telephone: (301) 504-8089. http://www.ams.usda.gov/lsg/seed.htm

S&T-470 (07-01) designed by the Plant Variety Protection Office with WordPerfect 9.0. Replaces STD-470 (04-01) which is obsolete.

'M-206' Rice

18a. Exhibit A. Origin and Breeding History of the Variety

1) **Genealogy**

98-Y-242 is a very early, to early, semidwarf, California glabrous, Calrose quality medium-grain (CRMG) experimental line that has been evaluated in large plot yield tests since 1998. It is a very early selection from the 1991-92 winter greenhouse cross R18087 and has the pedigree S-301/M-204. Both varieties used in the pedigree were developed by the California Cooperative Rice Research Foundation, (CCRRF) at the Rice Experiment Station (RES), Biggs, CA. S-301 is an intermediate maturity short-grain semidwarf that is no longer in production. M-204 is an early maturing Calrose medium-grain with semidwarf height. 98-Y-242 is the product of modified pedigree breeding. Early spray painted panicle selections from the 1993 F_2 nursery selected for medium grain shape were bulked 6 panicles per row in the 1993-94 Hawaiian nursery. Panicle selections grouped from the R18087 Hawaii rows were planted in 1994 individual rows. The line of descent was from 94 row 63811 via individual panicle selection to 95 row 6309 to 96 row 5136 which was bulked for 97 small plot 351 that was the seed source for entry 98-Y-242 in the RES Preliminary Yield Test. It has been tested in the University of California Cooperative Extension (UCCE) Statewide Yield Tests (99-Y-84, 00-Y-63, 01-Y-12, 01-Y-72, 02-Y-11, 02-Y-73) 1999 to 2002.

2) **Selection and multiplication**

Selection was made for, improved lodging resistance, early maturity,cold tolerance and yield potential, and grain quality characteristics similar to Calrose medium grains. Panicle selections were first taken for headrow production in 1999 and continued through 2002. The 1999 panicles were initially purified in the 2000 headrow nursery. Year 2000 selected headrows were generation advanced in 2000-01 Hawaiian nursery. Year 2001 breeder headrows totaled 300 rows from 2000 selected headrows and their descendents from 2001-02 Hawaii nursery. The year 2001 breeder increase consisted of two components. One component was derived from bulked year 2000 headrows while the other came from the 2000-01 Hawaii nursery. These bulks were harvested separately and planted in different foundation field locations in 2002 for a total of 7.7 acres. Previous experience revealed that in certain years more outcrossing occurs in the Hawaii nursery resulting in more offtypes in either the breeder and/or foundation production fields. Two years of observations and plant counts demonstrated that 2000-01 outcrossing in Hawaii was near non-existent resulting in the two components being combined for 2002 Foundation seed. The 2001 headrow panicle selections were used to plant 400 headrows in 2002.

3) **Uniformity and stability**

Panicle selections were first taken for headrow production in 1999 and continued through 2002. During the headrow years any putative segregating or variant rows were removed from the field. Visual inspection (seedling vigor, heading date, plant height, grain shape and size, etc.) of headrows were used as criteria to confirm cultivar purity. This is standard procedure at RES to monitor and maintain breeder seed of the 13 currently grown

California rice varieties. M-206 was approved for certification by the California Crop Improvement Association in 2002. Classes of seed will be breeder, foundation, registered, and certified seed produced in California. Foundation seed can be used to produce foundation seed if necessary and headrow and breeder seed will be produced in foundation fields as necessary to maintain cultivar purity. M-206 has been observed in seed increase and production fields for four generations (2000 to 2002) and found to be uniform and stable.

4) **Variants**

The breeder, foundation, and headrows were rogued multiple times and off-types, putative out crosses, and other visual variants were removed. These included pubescent and glabrous longer medium-grains with and without red apiculus, pubscent shorter length medium-grain, slightly earlier and later maturing medium-grains, and fully awned medium grains possibly from outcrossing. In addition there were putative tetraploids (larger kernel size, delayed maturity and high floret sterility) and chlorophyll chimeras removed from the field. Total frequency of these off types was 0.0172%.

18b. Exhibit B. Statement of Distinctiveness

1) **Variety Differences**

M-206 is a semidwarf, very early to early maturing, medium-grain being released to serve the Calrose medium-grain market. "Calrose" was the founding California medium-grain rice variety, the ancestor of California medium-grains, and is now recognized as a market class term for California medium-grain rice. Comparisons for evaluation purposes were made to M-202, which is the predominant early maturing California medium grain. M-104 is a very early Calrose medium grain. M-206 maturity (days 50% flowering) averages ½ way between M-104 and M-202. M-206 has higher harvest moisture than M-104. M-206 is most similar to M-202 and is distinguished by its earlier heading date.

2) **Statistical data**

Agronomic characteristics: Agronomic characteristics (seedling vigor through yield) were collected in multiple locations (N=21) University of California Cooperative Extension (UCCE) Statewide Yield Tests in 1999 to 2002 are summarized in Table 1. M-206 is significantly later than M-104 and significantly earlier than M-202. M-206 has significantly higher harvest moisture than M-104. Tables 2 & 3 show individual year statistical evidence collected from replicated large plot yield tests at RES.

Table 1. Summary of Agronomic Characteristics for M-104, M-206, and M-202 from 1998 to 2002.

Character	M-104	M-206	M-202
Seedling vigor (score)	4.5	4.5	4.6
Days 50% heading	82	*85*	89
Plant height (cm)	93	95	97
Lodging (%)	50	31	38
Blanking – Greenhouse (%)	13	12	25
Blanking – Davis (%)	7	12	16
Blanking – San Joaquin (%)	9	7	27
Overall blanking mean (%)	13	10	23
Stem rot (score)	5.6	5.4	5.5
Harvest moisture (%)	17.6	*19.8	19.7
Yield (lb/acre @ 14%)	9087	9350*	9060
Milling (%) total	68.9	69.0	68.7
Milling (%) whole grain	63.4	66.0	64.2
Brown weight 1000 seeds (g)	24.0	24.4	22.7
Brown length (mm)	6.26	6.23	5.96
Brown width (mm)	2.72	2.75	2.80
Ratio (L/W)	2.30:1	2.27:1	2.13:1
Apparent Amylose (%)	17.5	17.4	16.5
Alkali score (1.7% KOH)	6.5	6.8	6.9

*Significantly different at the 0.05 probability level.

Table 2. Harvest moisture of M-104, M-206, and M-202 from 1999-2002 at the Rice Experiment Station, Biggs, CA.

Year	Trial	M-104		M-206	LSD
1999	Early county	16.1	*	18.8	1.7
2000	Early county	16.5	*	21.0	2.1
2001	Very early county	17.0	*	19.4	1.8
2001	Early county	19.5	NS	20.8	1.5
2002	Very early county	19.3	*	23.9	1.8
2002	Early county	17.5	*	19.0	1.3

* Significantly different from M-104 at the 0.05 probability level.
† Significantly different from M-202 at the 0.05 probability level.

Table 3. Days to 50 % heading for M-104, M-206 & M-202 from 1998-2002 at the Rice Experiment Station, Biggs, CA.

Year	Trial	M-104		M-206		M-202	LSD
1998	Very early Preliminary	----	----	78	†	80	2.0
1999	Early county	79	*	85	†	90	2.2
2000	Early county	71	*	75	†	78	1.5
2001	Very early county	72	*	77	†	82	2.3
2001	Early county	72	*	77	†	81	3.2
2002	Very early county	81	*	85	†	89	3.3
2002	Early county	78	*	82	†	88	3.1

* Significantly different from M-104 at the 0.05 probability level.
† Significantly different from M-202 at the 0.05 probability level.

18c. Exhibit C. Objective Variety Description – Rice

See attached US Plant Variety Protection form "Objective Variety Description – Rice (*Oryza sativa L*)."

EXHIBIT C
(RICE)

U.S. DEPARTMENT OF AGRICULTURE
PLANT VARIETY PROTECTION OFFICE, AMS, USDA
NATIONAL AGRICULTURAL LIBRARY Bldg., Rm. 500
10301 BALTIMORE Blvd.
BELTSVILLE, MD 20705

OBJECTIVE VARIETY DESCRIPTION
RICE (*Oryza sativa*)

Name of Applicant(s)	Temporary Designation	Variety Name
California Cooperative Rice Research Foundation, Inc.	98-Y-242	M-206

Address (Street and No. or R.F.D. No., City, State, and Zip Code)

Rice Experiment Station
955 Butte City Hwy. (162)
P.O. Box 306
Biggs, CA 95917

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PVPO Number
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Place the appropriate number that describes the character of this variety in the spaces provided below. These numbers are also code numbers corresponding to descriptors developed by IBGR-IRRI Rice Advisory Committee and the US Rice Crop Advisory Committee. Breeders will demonstrate novelty more readily by describing as many characters as is possible.

1. MATURITY - Days to Heading (Seeding to 50% Heading):

A. South: (Location: _____) at _____ kg/ha (Nitrogen rate)

____ Number of days

____ Days earlier than Check variety: _____

Days same as Check variety: _____

____ Days later than Check variety: _____

____ Maturity Class (50% heading) - South: 1 = Very early (less than 86 days) 2 = Early (86 - 100)
3 = Intermediate (101 - 115) 4 = Late (more than 115)

B. California: (Location: Biggs, CA) at 135 kg/ha (Nitrogen rate)
(fallowed land)

79 Number of days

5 Days earlier than Check variety: M-202

____ Days same as Check variety: _____

4 Days later than Check variety: M-104

2 Maturity Class (50% heading) - California: 1 = Very early (less than 91 days) 2 = Early (91 - 97)
3 = Intermediate (98 - 104) 4 = Late (more than 104 days)

2. CULM:

1 ANGLE (Degrees from Perpendicular after Flowering:

1 = Erect (less than 30°) 3 = Intermediate (about 45°) 5 = Open (about 60°)
7 = Spreading (more than 60° but the culms do not rest on the ground)
9 = Procumbent (the culm or its lower part rests on the ground surface)

.. CULM: (continued)

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LENGTH

__96.6__ cm (Soil level to top of extended panicle on main stem)

__3.0__ cm Shorter than Check variety: M-202

Length same as Check variety: _____

__2.4__ cm Longer than Check variety: M-104

__1__ HEIGHT CLASS: 1 = Semidwarf 2 = Short 3 = Medium 4 = Tall

__1__ INTERNODE COLOR (After flowering): 1 = Green 2 = Light Gold 3 = Purple lines 4 = Purple

__3__ STRENGTH (Lodging resistance): 1 = Strong (no lodging) 3 = Moderately strong (most plants leaning)
5 = Intermediate (most plants lodged) 7 = Weak (most plants flat)
9 = Very weak (all plants flat)

3. FLAG LEAF (After Heading):

__39.4__ cm LENGTH __12.2__ mm WIDTH

__1__ PUBESCENCE: 1 = Glabrous 2 = Intermediate 3 = Pubescent

__1__ LEAF ANGLE (after heading): 1 = Erect 3 = Intermediate 5 = Horizontal 7 = Descending

__2__ BLADE COLOR: 1 = Pale Green 2 = Green 3 = Dark Green 4 = Purple tips
5 = Purple margins 6 = Purple blotch 7 = Purple

__1__ BASAL LEAF SHEATH COLOR: 1 = Green 2 = Purple lines 3 = Light purple 4 = Purple

4. LIGULE:

___.___ mm LENGTH (from base of collar to the tip, at late vegetative stage)

__1__ COLOR (Late vegetative state): 1 = White 2 = Purple lines 3 = Purple

__1__ SHAPE: 1 = Acute to acuminate 2 = 2-Cleft 3 = Truncate

__1__ COLLAR COLOR (late vegetative stage): 1 = Pale green 2 = Green 3 = Purple

__1__ AURICLE COLOR (late vegetative stage): 1 = Pale green 2 = Purple

5. PANICLE:

__19.8__ cm LENGTH

__5__ TYPE: 1 = Compact 5 = Intermediate 9 = Open

__2__ SECONDARY BRANCHING: 1 = Absent 2 = Light 3 = Heavy 4 = Clustering

__3__ EXSERTION (near maturity): 1 = Less than 90% 2 = 90 - 99% 3 = 100% exserted

__2__ AXIS: 1 = Straight 2 = Droopy

__1__ SHATTERING: 1 = Very low (less than 1%) 3 = Low (1 - 5%) 5 = Moderate (6 - 25%)
7 = Moderately high (26 - 50%) 9 = High (more than 50%)

__3__ THRESHABILITY: 1 = Difficult 2 = Intermediate 3 = Easy

. GRAIN (Spikelet):

1 AWNS (after full heading): 0 = Absent 1 = Short and partly awned 5 = Short and fully awned 7 = Long and partly awned 9 = Long and fully awned

2 APICULUS COLOR (at maturity): 1 = White 2 = Straw 3 = Brown (tawny) 4 = Red 5 = Red apex 6 = Purple 7 = Purple apex

1 STIGMA COLOR: 1 = White 2 = Light green 3 = Yellow 4 = Light purple 5 = Purple

0 LEMMA AND PALEA COLOR (at maturity):

0 = Straw 1 = Gold and/or gold furrows on straw background 2 = Brown spots on straw (piebald)
3 = Brown furrows on straw 4 = Brown (tawny) 5 = Reddish to light purple
6 = Purple spots on straw 7 = Purple furrows on straw 8 = Purple
9 = Black 10 = White

2 LEMMA AND PALEA PUBESCENCE: 1 = Glabrous 2 = Hairs on lemma keel 3 = Hairs on upper portion 4 = Short hairs 5 = Long hairs (velvety)

1 SPIKELET STERILITY (at maturity): 1 = Highly fertile (>90%) 3 = Fertile (75-90%) 5 = Partly sterile (50-74%) 7 = Highly sterile (<50% to trace) 9 = Completely sterile (0%)

7. GRAIN (Seed):

2 SEED COAT (bran) COLOR: 1 = White 2 = Light brown 3 = Speckled brown 4 = Brown 5 = Red 6 = Variable purple 7 = Purple

1 ENDOSPERM TYPE: 1 = Nonglutinous (nonwaxy) 2 = Glutinous (waxy) 3 = Indeterminate

1 ENDOSPERM TRANSLUCENCY: 1 = Clear 5 = Intermediate 9 = Opaque

1 ENDOSPERM CHALKINESS: 0 = None 1 = Small (less than 10% of sample) 5 = Medium (10-20% of sample) 9 = Large (more than 20% of sample)

0 SCENT (Aroma): 0 = Nonscented 1 = Lightly scented 2 = Scented

SHAPE CLASS (length/width ratio):

2 PADDY 1 = Short (2.2:1 and less) 2 = Medium (2.3:1 to 3.3:1) 3 = Long (3.4:1 and more)

2 BROWN 1 = Short (2.0:1 and less) 2 = Medium (2.1:1 to 3.0:1) 3 = Long (3.1:1 and more)

2 MILLED 1 = Short (1.9:1 and less) 2 = Medium (2.0:1 to 2.9:1) 3 = Long (3.0:1 and more)

MEASUREMENTS:

Grain Form	Length (mm)	Width (mm)	Thickness (mm)	L/W Ratio	1000 Grains (grams)
Paddy	8.46	3.15		2.69	
Brown	6.32	2.83		2.23	25.0
Milled	5.74	2.69		2.13	20.7

21.0 Milling quality (% hulls) 66.0 Milling yield (% whole kernel (head) rice to rough rice)

6.3 % Protein NIR 17.4 % Amylose

Alkali Spreading value: _____ 1.5% KOH Solution 6.8 1.7% KOH Solution

7. GRAIN (Seed): (continued)

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7 GELATINIZATION TEMPERATURE TYPE: 1 = High 5 = Intermediate 7 = Low

Amylographic Paste Viscosity (Brabender Units)

Peak	Hot Paste	Cooled Paste	'Breakdown'	'Setback'
269	163	266	95	-4

8. RESISTANCE TO LOW TEMPERATURE:

3 GERMINATION AND SEEDLING VIGOR: 1 = Low 2 = Medium 3 = High

3 FLOWERING (Spikelet fertility): 1 = Low 2 = Medium 3 = High

9. SEEDLING VIGOR NOT RELATED TO LOW TEMPERATURE:

3 VIGOR: 1 = Low 2 = Medium 3 = High

10. BLAST RESISTANCE (*Pyricularia Oryzae*). (International races found under references)

0 = Immune 1 = Resistant 3 = Moderately resistant 5 = Intermediate 7 = Moderately susceptible 9 = Susceptible

Group			IB			IC		ID		IE	IG	IH
Number	1	5	45	49	54	1	17	1	13	1	1	1
Resistance											9	

11. RESISTANCE TO OTHER DISEASES:

0 = Immune 1 = Resistant 3 = Moderately resistant 5 = Intermediate 7 = Moderately susceptible 9 = Susceptible

	Narrow Brown Leaf Spot *Cercospora oryzae*	7	Aggregate Sheath Spot *Rhizoctonia oryzae-sativae*
	Leaf Smut *Entyloma oryzae*		Straight Head
	Brown Leaf Spot *Helminthosporium oryzae* (=*Bipolaris oryzae*) (=*Drechslera oryzae*)		Kernel Smut *Neovossia horrida* (=*Tilletia barclayana*)
	Leaf Scald *Gerlachia oryzae*		White Tip Nematode *Aphelenchoides besseyi*
	Hoja Blanca Virus	7	Stem Rot *Sclerotium oryzae*
	Sheath Rot *Sarocladium oryzae*		
	Pythium Seedling Blight *Pythium* sp.		Bacterial Blight *Xanthomonas campestris* pv. *oryzae*
	Sheath Spot *Rhizoctonia oryzae*		Sheath Blight *Rhizoctonia solani*
	Other:		

12. INSECT RESISTANCE:

0 = Immune 1 = Resistant 3 = Moderately resistant 5 = Intermediate 7 = Moderately susceptible 9 = Susceptible

	Grasshopper		Rice Stink Bug *Oebalus pugnax*
	Rice Leafhopper		Swarm Caterpillar
	Rice Hispa	9	Rice Water Weevil *Lissorhoptrus oryzophilus*
	Rice Midge		Rice Stalk Borer *Chilo plejadellus*
	Least Skipper		Sugarcane Borer *Diatraea saccharalis*

13. OTHER DESCRIPTORS: If there are other characters that describe this variety, please indicate below:

200300180

REFERENCES

1. C. R. Adair *et al.* 1972. Rice in the United States: Varieties and Production. USDA Handbook No. 289 (Rev.), 124 pp.

2. J. G. Atkins *et al.* 1967. An International Set of Rice Varieties for Differentiating Race of *Pyricularia Oryzae*. Phytopath. 57:297-301.

3. IBPGR-IRRI Rice Advisory Committee. 1980. Descriptors for Rice *Oryza sativa* L.). International Rice Research Institute. 21 pp.

4. K. C. Ling and S. H. Ou, 1969. Standardization of the International Race Numbers of *Pyricularia Oryzae*. Phytopath. 59:339-342.

5. B. D. Webb *et al.* 1985. Utilization Characteristics and Qualities of United States Rice. In Proceedings on Rice Grain Quality and Marketing. International Rice Research Institute (IRRI), Los Banos, Philippines. p. 25-35.

RELEASE OF 'M-206' RICE

A. Variety Name, Temporary Designation, and Genus Species

M-206 **98-Y-242** ***Oryza sativa* L.**

B. Origin and Breeding History of the Variety

1. **Genealogy:** M-206 is a very early, to early, semidwarf, California glabrous, Calrose quality medium-grain (CRMG) experimental line that has been evaluated in large plot yield tests since 1998. It is a very early selection from the 1991-92 winter greenhouse cross R18087 and has the pedigree S-301/M-204. Both varieties used in the pedigree were developed by the California Cooperative Rice Research Foundation, (CCRRF) at the Rice Experiment Station (RES), Biggs, CA. S-301 is an intermediate maturity short-grain semidwarf that is no longer in production. M-204 is an early maturing Calrose medium-grain with semidwarf height. M-206 is the product of modified pedigree breeding. Early spray painted pancile selections from the 1993 F_2 nursery selected for medium grain shape were bulked 6 panicles per row in the 1993-94 Hawaiian nursery. Panicle selections grouped from the R18087 Hawaii rows were planted in 1994 individual rows. The line of descent from was 94 row 63811 via individual panicle selection to 95 row 6309 to 96 row 5136 which was bulked for 97 small plot 351 that was the seed source for entry 98-Y-242 in the RES Preliminary Yield Test. It has been tested in the University of California Cooperative Extension (UCCE) Statewide Yield Tests (99-Y-84, 00-Y-63, 01-Y-12, 01-Y-72, 02-Y-11, 02-Y-73) 1999 to 2002. Approximately 600 cwt of foundation seed is available if released.

2. **Selection and multiplication:** Panicle selections were first taken for headrow production in 1999 and continued through 2002. The 1999 panicles were initially purified in the 2000 headrow nursery. Year 2000 selected headrows were generation advanced in 2000-01 Hawaiian nursery. Year 2001 breeder headrows totaled 300 rows from 2000 selected headrows and their descendents from 2001-02 Hawaii nursery. The year 2001 breeder increase consisted of two components. One component was derived from bulked year 2000 headrows while the other came from the 2000-01 Hawaii nursery. These bulks were harvested separately and planted in different foundation field locations in 2002 for a total of 7.7 acres. Previous experience revealed that in certain years more outcrossing occurs in the Hawaii nursery resulting in more offtypes in either the breeder and/or foundation production fields. Two years of observations and plant counts demonstrated that 2000-01 outcrossing in Hawaii was near non-existent resulting in the two components being combined for 2002 Foundation seed. The 2001 headrow panicle selections were used to plant 400 headrows in 2002.

3. **Variants:** The breeder, foundation, and headrows were rogued multiple times and off-types, putative out-crosses, and other visual variants were removed. These included pubscent and glabrous longer medium-grains with and without red apiculus, pubscent shorter length medium-grain, slightly earlier and later maturing medium-grains, and fully awned medium grains possibly from outcrossing. In addition there were putative tetraploids (larger kernel size, delayed maturity and high floret sterility) and chlorophyll chimeras removed from the field. Total frequency of these off types was 0.0172%.

4. **Stability:** Selection, headrow, isolation, inspection, and seed production methods used by the RES for California rice varieties were followed for M-206 and no indication of problems in stability were observed in the foundation seed.

C. Description of Variety

1. **Botanical description:** M-206 is a medium-grain cultivated rice that is classified as Gramineae, *Oryza sativa L.*, and a temperate race japonica. It is a very early, to early, maturing semidwarf cultivar. The floret hull and leaves are glabrous except for hairs on lemma keel and leaf margins (California glabrous). Leaves are erect and green in color. The spikelet and apiculus are straw colored and sparsely awned. The appearance and amount of awns vary by years and growing environments. M-206 has a colorless, nonaromatic, and nonwaxy endosperm with a light brown pericarp.

2. **Objective description:** See attached USDA Plant Variety Protection Office description form Exhibit C.

D. Evidence of Variety Identity and Performance Characteristics

1. **Performance characteristics:** M-206 is a semidwarf, very early to early maturing, Calrose medium-grain experimental line that has been evaluated in UCCE Statewide Yield Tests since 1999 to 2002. Table 1 represents the overall evaluation from these tests plus milling, grain physical attributes, and basic starch classification characters. Comparison for these evaluation purposes were made to M-104 and M-202. Supplemental Tables 1 to 26 plus RVA graphs provide additional supporting information describing milling results, location year yield comparisions, grain physical attributes, and a more in depth quality characterization. M-103 and M-205 have been added for specific comparisions to support a more complete variety performance package. Table 1 shows that M-206 is 4 days earlier, has better lodging resistance, higher blanking resistance, improved headrice compared to M-202. M-206 has a small increase in seed weight, and size when compared to M-202 and M-104. Field observations indicate it is more stable in less than optimal field conditions, and has less nonsynchrous heading. It is not resistant to California rice blast race IG1.

Table 1. 1998 to 2002 Summary of Agronomic Characteristics for M-104, M-206, and M-202.

Character	M-104	M-206	M-202
Seedling vigor (score)	4.5	4.5	4.6
Days 50% heading	82	85*	89
Plant height (cm)	93	95	97
Lodging (%)	50	31	38
Blanking – Greenhouse (%)	13	12	25
Blanking – Davis (%)	7	12	16
Blanking – San Joaquin (%)	9	7	27
Overall blanking mean (%)	13	10	23
Stem rot (score)	5.6	5.4	5.5
Harvest moisture (%)	17.6	19.8	19.7
Yield (lb/acre @ 14%)	9087	9350*	9060
Milling (%) total	68.9	69.0	68.7
Milling (%) whole grain	63.4	66.0	64.2
Brown weight 1000 seeds (g)	24.0	24.4	22.7
Brown length (mm)	6.26	6.23	5.96
Brown width (mm)	2.72	2.75	2.80
Ratio (L/W)	2.30:1	2.27:1	2.13:1
Apparent Amylose (%)	17.2	17.4	16.2
Alkali score (1.7% KOH)	6.4	6.7	7.0

*Significantly different LSD 5%.

Cold rice growing regions in Escalon and the Delta have lower temperatures along with marine air influence that generally delays maturity, reduces height and lodging, and has a potential for higher floret sterility due to lower temperatures (Table 2). M-206 behaves as a full season variety but maintains satisfactory yield performace when compared to the only commercially grown medium-grain varieties M-104 and M-103. M-206 yield performance relative to M-104 and M-103 was verified by a 2002 strip trial (Supplemental Tables 22 & 23). M-206 milling total and whole grain was improved over M-104 (Supplemental Table 3) at this location.

Table 2. 2001 to 2002 Summary of Agronomic Characteristics for M-104, M-206, M-202 and M-103 at San Joaquin.

Character	M-104	M-206	M-202	M-103
Seedling vigor (score)	4.6	4.6	4.7	4.4
Days 50% heading	93	97	98	88
Plant height (cm)	80	86	83	80
Lodging (%)	1	1	1	1
Harvest moisture (%)	21.6	23.9	24.0	19.4
Yield (lb/acre @ 14%)	8900	8590*	7880	8355

Significantly different LSD 5%.

2. Quality characteristics: Kernels of M-206 are slightly larger in size and weight compared to M-104 and M-202 (Table 1). Whole kernel grain M-206 milling %'s are improved (multi-year milling rows, plots, seed increases, and strip trials) when compared to M-104 and M-202 (Supplimental Tables 1-4). Laboratory analysis for physicochemical characteristics (apparent amylose content, protein, RVA curves, and gelatinization temperature) by the USDA Rice Quality Laboratory indicate that it fits CRMG standards. Milled rice samples of M-206, M-104, and M-202 were distributed to various California rice marketing organizations and individual rice quality evaluators in 2001-02. Responses from evaluations indicate M-206 is similar to M-104 and M-202 for various cooking and taste characters. M-206 can be commingled with other CRMG's (Supplemental Tables 25 and 26).

E. Area of Adaptation and Primary Use

M-206 is being released as a Calrose medium-grain. The data indicates it has broad adaptation in the entire rice growing region. In warm areas it will be another alternative to M-202 to allow the harvest spread for growers using M-205. Going south to the Yolo county line it can be used as an alternative or in combination with M-202. In cool production areas (Sacramento Airport, Yolo county, and areas east of Hwy 70) it can be an alternative to M-202 or be used in combination with M-202. In the coldest areas (Escalon and the Delta) it becomes a full season variety but has good blanking resistance and improved whole grain head rice over M-104.

F. Seed Maintenance

M-206 was developed and is owned by CCRRF. It is being proposed for joint release by CCRRF, the California Agriculture Experiment Station (CAES), and the United States Department of Agriculture—Agricultural Service (USDA-ARS). Breeder and foundation seed of M-206 will be maintained by CCRRF at the Rice Experiment Station, P. O. Box 306, 955 Butte City Highway, Biggs, CA 95917-0306. Foundation seed will be planted to produce registered seed and registered seed will be planted to produce certified seed. Headrow seed will be produced as needed in the foundation seed field to minimize outcrossing and insure parity. Foundation seed can be used to produce foundation seed when necessary. The various classes of seed will be produced in California. Application will be made for M-206 under the U. S. Plant Variety Protection, Title V option, and a utility patent also will be applied for by CCRRF.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
California Cooperative Rice Research Foundation, Inc.	98-Y-242	M-206
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
Rice Experiment Station P.O. Box 306 Biggs, CA 95917-0306	(530)868-5481	(530)868-1730
	7. PVPO NUMBER 200300180	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country [X] YES [ ] NO

10. Is the applicant the original owner? [X] YES [ ] NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

[ ] YES [ ] NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

[ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(If needed, use the reverse for extra space)*:

M-206 was developed by Dr. Carl W. Johnson who is a plant breeder employee by the California Cooperative Rice Research Foundation, Inc. (CCRRF)

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.